Shedding light on early embankments and associated landscape change on the Belgian coast using OSL profiling and dating

PRESENTED BY

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ABSTRACT
Water management is a key element in the history of the Belgian coast. Nowadays, hundreds of kilometres of manmade dikes and channels characterise the region's landscape and contribute to its unique historical value. This is a fairly recent development. For most of its Holocene history, the coastal plain was an unembanked tidal marshland. Studying how it was transformed into today's manmade embanked and drained polder landscape is the main aim of TESTEREP, an interdisciplinary research project looking into the evolution of the Belgian Middle Coast over the past 5000 years (https://testerep-project.be).

The project is named after the Testerep peninsula, once located here between the cities of Nieuwpoort and Oostende. Testerep was separated from the mainland by a broad tidal gully, which was embanked and drained, and consequently ceased to exist sometime during the Middle Ages. A relative chronology for the embankment process in the Testerep region had already been established, but absolute dating evidence was largely lacking.

To address this shortcoming, two case study areas were chosen for detailed investigation: one where a presumed late medieval embankment is still preserved aboveground, another where subsurface remains of a peat-reinforced bank, perhaps of Roman age, had been excavated 20 years ago.

In both cases OSL dating in the lab was combined with OSL profiling in the field using a portable OSL reader. This allowed luminescence-depth profiles to be constructed for both the banks and their underlying and overlying sediments. As a result, detailed chronologies could be created of when the banks were in use, but also of the landscape phases preceding and following them. The study helps us better understand the long-term evolution of the Belgian coastal plain and how people adapted to life in this dynamic environment, modifying the landscape itself in the process.

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